

WHAT IS CLAIMED IS:

1 1. A method for controlling acceleration of a toy vehicle  
2 configured to be operated by a person, said method comprising:  
3 receiving a throttle signal operable to induce motion  
4 via a motor operating as a drive mechanism of the toy vehicle;  
5 generating a transition signal based on the throttle  
6 signal; and  
7 applying the transition signal to affect operation of  
8 the motor.

1 2. The method according to claim 1, wherein the  
2 transition signal is a pulse width modulation signal.

1 3. The method according to claim 1, wherein the pulse  
2 width modulation ranges from approximately a 20 percent to  
3 approximately a 100 percent duty cycle.

1 4. The method according to claim 1, wherein the motor  
2 includes a high and low terminal, the transition signal being  
3 applied to the low terminal of the motor.

1        5.    The method according to claim 1, wherein the operation  
2 of the motor is a transition from a first to a second angular  
3 velocity.

1        6.    The method according to claim 5, wherein the  
2 transition from the first to second angular velocity is  
3 substantially linear.

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1        7.    The method according to claim 6, wherein the  
2 transition signal ramps power to the motor.

1        8.    The method according to claim 5, wherein the  
2 transition from the first to second angular velocity is non-  
3 linear.

1        9.    The method according to claim 5, wherein the  
2 transition occurs over a time span of at least one second.

1 10. The method according to claim 1, further comprising:  
2 receiving a shift signal indicative of a change of  
3 direction of motion for the toy vehicle;  
4 if power is being applied to the motor,  
5 initiating a delay; and  
6 applying the transition signal to the motor.

1 11. The method according to claim 1, further comprising:  
2 forming a second transition signal upon the throttle  
3 signal being transitioned, the second transition signal being  
4 utilizable upon the throttle signal being re-transitioned over a  
5 predetermined time duration.

1 12. The method according to claim 11, further comprising:  
2 initiating, upon the throttle signal being re-  
3 transitioned before expiration of the predetermined time  
4 duration, the transition signal at a level associated with the  
5 second transition signal.

1 13. The method according to claim 11, wherein the second  
2 transition signal is substantially linear.

1 14. A toy vehicle operable by a person, said toy vehicle  
2 comprising:

3 a battery having a positive and a ground terminal, and  
4 for providing power to electrical components of the toy vehicle;

5 a motor;

6 a mobility device coupled to said motor and operable  
7 to provide motion for the toy vehicle;

8 a throttle switch electrically coupled between said  
9 battery and said motor, and operable to provide power to said  
10 motor; and

11 a circuit having a first and a second terminal, the  
12 first terminal being coupled to said battery and the second  
13 terminal being coupled to said motor, said circuit being  
14 operable to generate a transition signal for said motor to  
15 transition from a first to a second angular velocity.

1 15. The toy vehicle according to claim 14, wherein the  
2 first terminal of said circuit is coupled to the ground terminal  
3 of said battery.

1 16. The toy vehicle according to claim 14, wherein the  
2 transition signal is a pulse width modulation signal.

1 17. The toy vehicle according to claim 16, wherein the  
2 pulse width modulation signal has a duty cycle of above  
3 approximately 20 percent corresponding to the first angular  
4 velocity.

1 18. The toy vehicle according to claim 14, wherein said  
2 circuit includes a processor operable to execute software for  
3 producing the transition signal.

1 19. The toy vehicle according to claim 18, wherein the  
2 software further produces a second transition signal upon  
3 transition of said throttle switch.

1 20. The toy vehicle according to claim 14, wherein the  
2 transition from the first to the second angular velocity is  
3 substantially linear.

1 21. The toy vehicle according to claim 14, wherein the  
2 transition signal causes a ramp of the power to said motor.

1 22. The toy vehicle according to claim 14, wherein the  
2 transition from the first to the second angular velocity is non-  
3 linear.

1        23. The toy vehicle according to claim 14, further  
2 comprising a disable mechanism operable to disengage the power  
3 from said motor.

1        24. The toy vehicle according to claim 23, wherein the  
2 disable mechanism is a switch.

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1        25. The toy vehicle according to claim 23, wherein said  
2 circuit includes failsafe detect circuitry for detecting a  
3 failure and enabling the disable mechanism upon detection  
4 thereof.

1        26. The toy vehicle according to claim 14, further  
2 comprising a shift mechanism to switch between forward and  
3 reverse, said circuit being operable to remove power from said  
4 motor, generate a delay, and reinitiate the transition signal  
5 upon a transition between forward and reverse.

1        27. The toy vehicle according to claim 14, wherein the  
2 mobility device includes at least one of a wheel and a  
3 propeller.

1        28. The toy vehicle according to claim 14, wherein the toy  
2 vehicle is configured to resemble at least one of the following:  
3 automobile, truck, boat, airplane, scooter, and motorcycle.

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1        29. A system for controlling acceleration of a toy vehicle  
2 configured to be operated by a person, said system comprising:

3            means for receiving a throttle signal operable to  
4 induce motion via a motor operating as a drive mechanism of the  
5 toy vehicle;

6            means for generating a transition signal based on the  
7 throttle signal; and

8            means for applying the transition signal to effect  
9 operation of the motor.

1        30. The system according to claim 29, wherein the  
2 transition signal is a pulse width modulation signal.

1        31. The system according to claim 29, further comprising:

2            means for receiving a shift signal indicative of a  
3 change of direction of motion for the toy vehicle; and

4            means for determining if power is being applied to the  
5 motor;

6            means for initiating a delay; and

7            means for applying the transition signal including the  
8 delay to the motor if power is being applied to the motor.



1 32. The system according to claim 29, further comprising:

2 means for forming a second transition signal upon the  
3 throttle signal being transitioned, the second transition signal  
4 being utilizable upon the throttle signal being re-transitioned  
5 over a predetermined time duration.

1 33. The system according to claim 32, further comprising:

2 means for initiating, upon the throttle signal being  
3 re-transitioned before expiration of the predetermined time  
4 duration, the transition signal at a level associated with the  
5 second transition signal.

34. The system according to claim 29, further comprising  
means for providing a failsafe to disengage the motor upon  
detecting a failure of said means for generating the transition  
signal.

1 35. A system for controlling a toy vehicle having a  
2 battery and a motor, said system comprising:

3 a circuit having a first and second terminal, the  
4 first terminal electrically coupled to the battery and the  
5 second terminal coupled to the motor for rotating a mobility  
6 device,

7 a third terminal electrically coupled to a device  
8 operable to produce a throttle signal, said circuit further  
9 including a processor operable to execute a software program to  
10 generate a transition signal, based on receiving the throttle  
11 signal on the third terminal, to transition the motor from a  
12 first to a second angular velocity.

1 36. The system according to claim 35, wherein the toy  
2 vehicle is configured to resemble an automobile, truck, boat,  
3 airplane, motorcycle, and scooter.

1 37. The system according to claim 35, wherein the mobility  
2 device includes at least one of a wheel and propeller.

1 38. The system according to claim 35, wherein the  
2 transition signal is a pulse-width modulation signal.

1        39. The system according to claim 38, wherein the pulse-  
2 width modulation signal has a duty cycle of approximately 20  
3 percent as associated with the first angular velocity.

1        40. The system according to claim 35, wherein the first  
2 terminal is electrically coupled to a ground terminal of the  
3 battery.

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1        41. A computer-readable medium having stored thereon  
2 sequences of instructions, the sequences of instructions  
3 including instructions, when executed by a processor, causes the  
4 processor to:

5            receive a throttle signal operable to induce motion  
6 via a motor operating as a drive mechanism of the toy vehicle;

7            generate a transition signal based on the throttle  
8 signal; and

9            apply the transition signal to effect operation of a  
10 motor operating within a toy vehicle.

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42. A method for disabling a toy vehicle, configured to be operated by a person, having a battery and a motor, said method comprising:

receiving an on/off signal indicative to turn on and off the motor;

generating a switch signal to apply to the motor to induce motion of the toy vehicle;

monitoring operation of the switch signal;

determining improper operation of the switch signal;

and

disengaging the motor from the battery upon said determining an improper switch signal.

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1        43. A system for disabling a toy vehicle, configured to be  
2        operated by a person, having a battery and a motor, said system  
3        comprising:

4                means for receiving an on/off signal indicative to  
5        turn on and off the motor;

6                means for generating a switch signal to apply to the  
7        motor to induce motion of the toy vehicle;

8                means for monitoring operation of the switch signal;

9                means for determining an improper switch signal; and

10                means for disengaging the motor from the battery upon  
11        said determining an improper switch signal.

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1        44. A toy vehicle operable by a person, said toy vehicle  
2 comprising:

3            a battery having a positive and a ground terminal, and  
4 for providing power to electrical components of the toy vehicle;

5            a motor;

6            a mobility device coupled to said motor and operable  
7 to provide motion for the toy vehicle;

8            a first switching element coupled between said motor  
9 and said battery;

10           a second switching element coupled to said battery,  
11 and operable to indicate application of power to said motor; and

12           a circuit having a first and a second terminal, the  
13 first terminal being coupled to said second switching element  
14 and the second terminal being coupled to said motor, said  
15 circuit including a third switching element being operable to  
16 generate a signal for said motor to turn on and off, said  
17 circuit further comprising a failsafe circuit to detect a  
18 failure of a component of said circuit and enabling said first  
19 switching element to disable said motor.

45. The system according to claim 44, wherein said third  
switching element includes at least one FET.

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